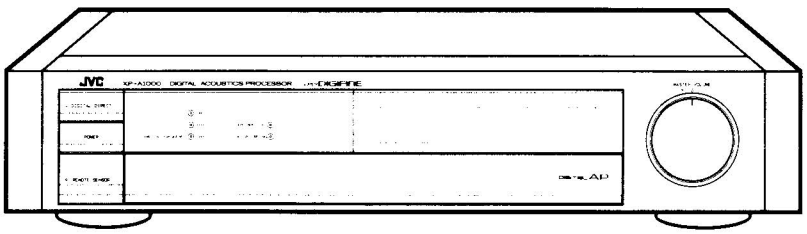
JVC

DIGITAL ACOUSTICS PROCESSOR

MODEL No. XP-A1000BK



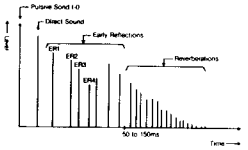
No. 20062
Aug. 1988

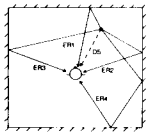
DIGITAL ACOUSTICS PROCESSOR (DAP)

Music from your stereo is more enjoyable when it faithfully reproduces the original performance and creates the feeling of a live performance (sound-field creation). The JVC Digital Acoustics Processor (DAP) makes that performance possible.

The sound patterns comprising a sound field is classified into three types of sound:

- Direct sound from the sound source
- Reflected sound from wall and ceiling
- Reverberating sound, repetition of reflected sound

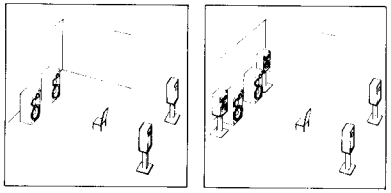




These three types of sound vary depending upon the size and shape of the performance place, the wall and ceiling material, the positions of musicians and the audience.

The characteristic sound of a famous concert hall is produced by the balance of these three elements created in the structure of the concert hall.

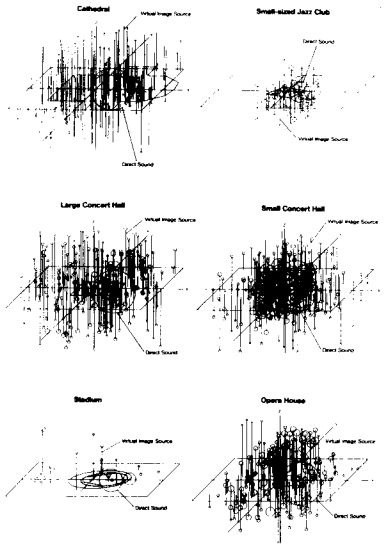
Music playedback from your audio device can be enjoyed with the feeling of a live performance by adding two or four dedicated speakers (other than two front speakers) to reproduce the reflected and reverberating sound of a concert hall.



The JVC DAP reproduces the sound-field patterns of a live performance (the reflected sound that a listener hears from various directions) using the most recent digital technology. It allows you to enjoy the effect of a live performance by reproducing, in your listening room, the sound field of a jazz club, concert hall or church.

The DAP is programmed with 20 patterns of sound fields from such places as a concert hall, recital hall, church, cathedral, jazz club and a stadium. The sound field data pattern was collected using the new "Symmetrical 6-point sound-field analyzing method". From these 20 patterns you can select the optimum sound field for the playback program according to the style of music you listen to.

Symmetrical 6-Point Sound Field Analysis Pattern



Also, when loading a programmed pattern, temporary changes can be made in the parameters of these programs. You can create your own sound-field patterns by changing the parameters and then saving the new sound-field pattern in one of the 20 manual-program memory locations.

CONNECTION AND PREPARATIONS

Connect the cables; set and adjust the switches according to the connected audio equipment and the speaker arrangement (four channels or six channels). Use the following tables to guide your setup:

When Using an Analog Amplifier as the Main Signal (Source Playback):

Turn the DIGITAL DIRECT switch OFF (analog).

Amplifier and input terminal / Speaker arrangement and switch operation	Separate amplifier	Pre-Main Amplifier	
		With PREOUT-MAIN IN terminal	With TAPE MONITOR terminal
6 CHANNEL	Fig. A	Fig. B	Fig. C
DAP MODE switch	6 CH ( )	6 CH ( )	6 CH ( )
4 CHANNEL	Fig. A	Fig. B	Fig. C
DAP MODE switch	4 CH ( )	4 CH ( )	4 CH ( )

When Using a Digital Amplifier (with D/A Converter) as the Main Signal (Source Playback):

Turn the DIGITAL DIRECT switch ON (digital).

When connecting a digital amplifier with a larger delay time between input and output, set the OFFSET DELAY TIME of this unit to match the delay time of the digital amplifier in order to create a proper sound field.

Amplifier and input terminal / Speaker arrangement and switch operation	Pre-Main Amplifier				Separate amplifier	
	with TAPE MONITOR terminal		With PREOUT-MAIN IN terminal			
	OPTICAL	COAXIAL	OPTICAL	COAXIAL	OPTICAL	COAXIAL
6 CHANNEL	Fig. D		Fig. E		Fig. F	
DAP MODE switch	6 CH ( )		6 CH ( )		6 CH ( )	
OPTICAL / COAXIAL Selection switch						
4 CHANNEL	Fig. D		Fig. E		Fig. F	
DAP MODE switch	4 CH ( )		4 CH ( )		4 CH ( )	
OPTICAL / COAXIAL Selection switch						

USING ANALOG SEPARATE TYPE AMPLIFIER

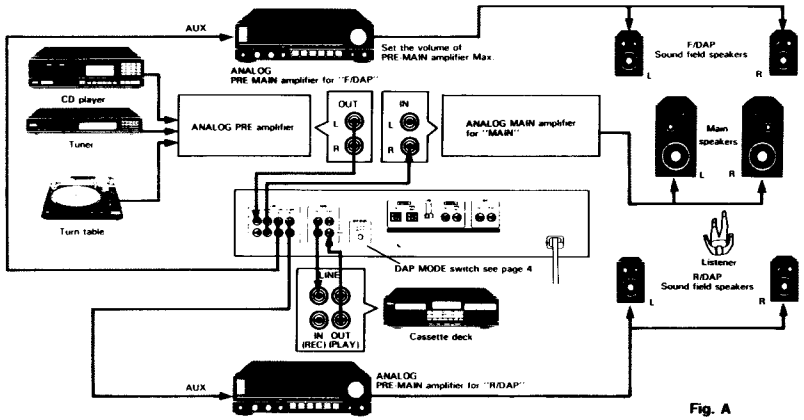


Fig. A

	Amplifier for "F/DAP"	"F/DAP" speakers
4 channel mode	not used	not used
6 channel mode	Connect to F/DAP out	Connect to the amplifier for "F/DAP"

USING PRE-MAIN AMPLIFIER WITH PREOUT MAIN IN TERMINAL FOR "MAIN"

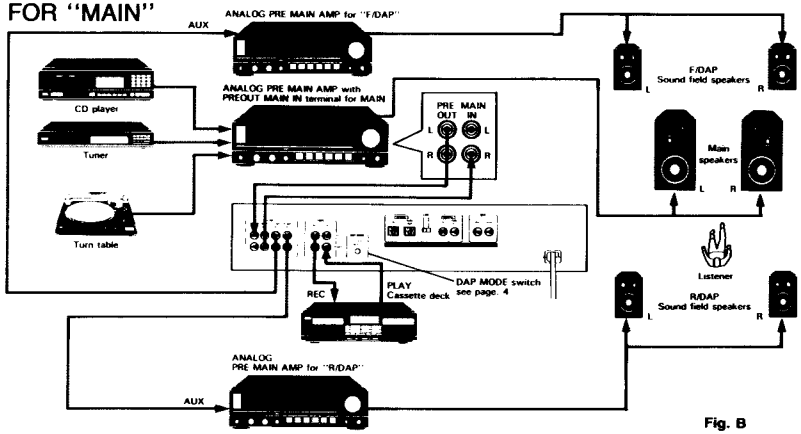


Fig. B

	Amplifier for "F/DAP"	"F/DAP" speakers
4 channel mode	not used	not used
6 channel mode	Connect to F/DAP out	Connect to the amplifier for "F/DAP"

USING PRE-MAIN AMPLIFIER WITH TAPE MONITER TERMINAL, FOR "MAIN"

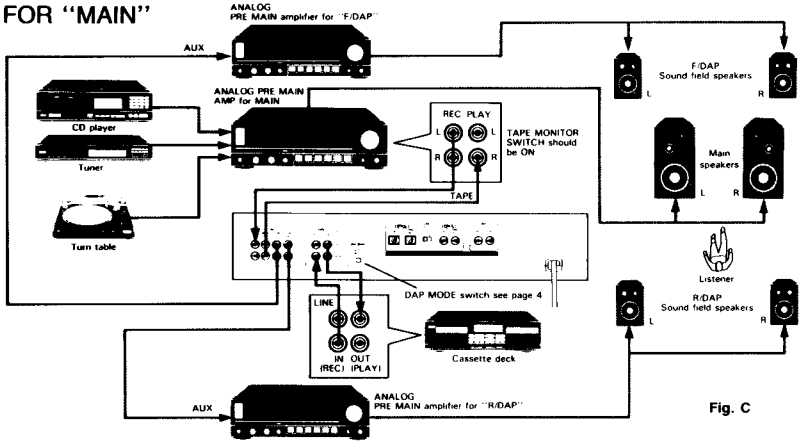


Fig. C

	Amplifier "F/DAP"	"F/DAP" speakers
4 channel mode	not used	not used
6 channel mode	Connect to F/DAP out	Connect to the amplifier for "F/DAP"

USING AMPLIFIER WITH D/A CONVERTER AND TAPE MONITOR, FOR "MAIN"

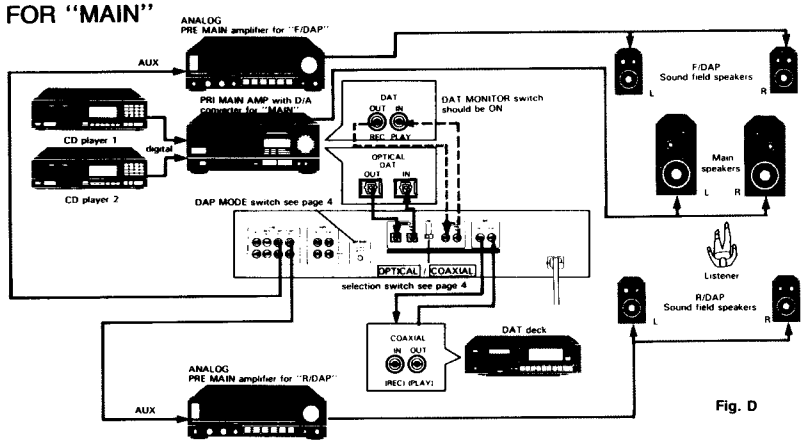


Fig. D

	Amplifier "F/DAP"	"F/DAP" speakers
4 channel mode	not used	not used
6 channel mode	Connect to F/DAP out	Connect to the amplifier for "F/DAP"

USING AMPLIFIER WITH D/A CONVERTER AND PREOUT-MAIN IN TERMINAL FOR "MAIN"

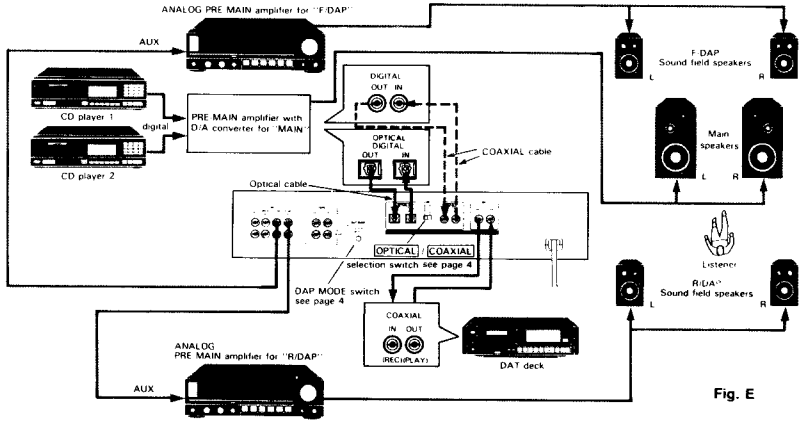


Fig. E

	Amplifier "F/DAP"	"F/DAP" speakers
4 channel mode	not used	not used
6 channel mode	Connect to F/DAP out	Connect to the amplifier for "F/DAP"

USING SEPARATE TYPE AMPLIFIER WITH D/A CONVERTER, FOR "MAIN"

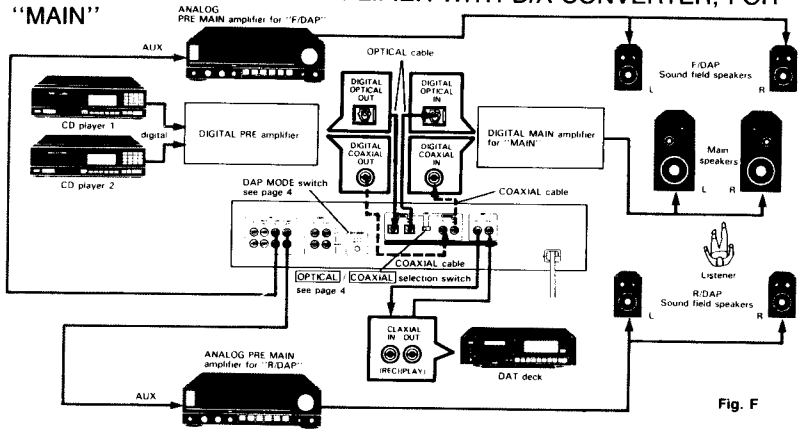
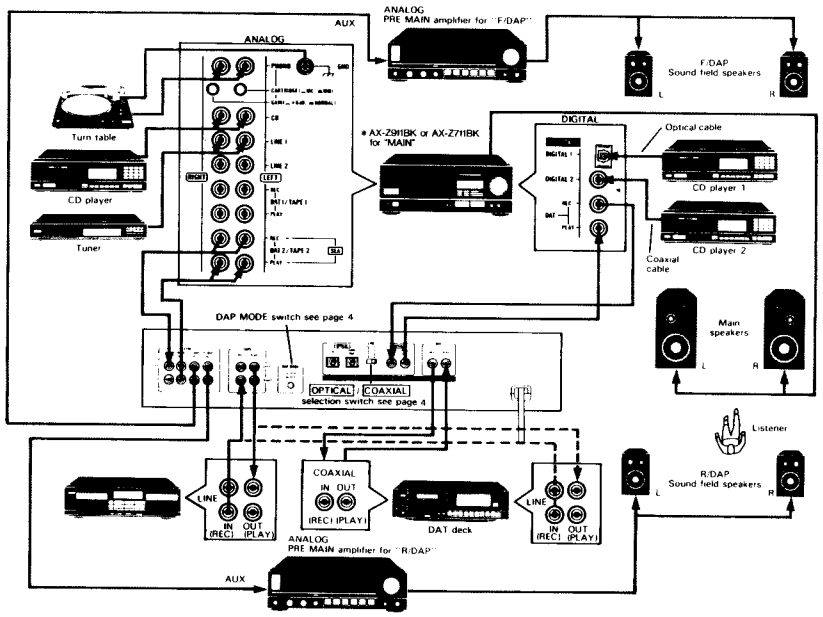


Fig. F

NOTE: Main level cannot be controlled by master volume.

	Amplifier "F/DAP"	"F/DAP" speakers
4 channel mode	not used	not used
6 channel mode	Connect to F/DAP out	Connect to the amplifier for "F/DAP"

USING JVC AMPLIFIER AX-Z911BK, AX-Z711BK FOR "MAIN"



	Amplifier "F/DAP"	"F/DAP" speakers
4 channel mode	not used	not used
6 channel mode	Connect to F/DAP out	Connect to the amplifier for "F/DAP"

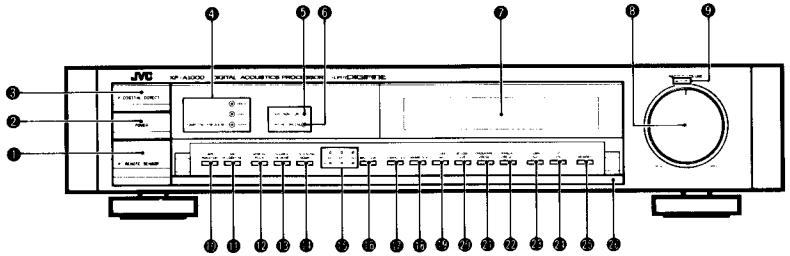
In case of using our amplifier with above indicated connecting method, set each switch as follows.

MODEL	AMP SOURCE SELECTION	AMP DAT MONITOR SW	AMP TAPE2 MONITOR SW	MAIN UNIT DIGITAL DIRECT SW	MAIN UNIT OFFS DELAY VALUE
AX-Z911BK	DIGITAL	ON	ON	ON	48KHz / 44.1KHz / 32KHz 140mS / 150mS / 200mS
	ANALOG	ON or OFF	ON	OFF	0mS
AX-Z711BK	DIGITAL	ON	OFF	ON*	0mS
	ANALOG	OFF	ON	OFF	0mS

* In this case, main level cannot be controlled by master volume.

DESCRIPTION AND FUNCTIONS

Front Panel



❶ REMOTE SENSOR
Receives signals from the remote controller. The indicator is lit while receiving a signal.

❷ POWER
Push this button to turn the power on. Push it again to turn the power off.

❸ DIGITAL DIRECT
Changes input to digital or analog. When digital input is specified, this indicator is lit.

❹ SAMPLING FREQUENCY
Indicates sampling frequency of digital input; indicates the 48 kHz sampling frequency of DAP during analog input.

❺ TAPE MONITOR Indicator
TAPE MONITOR indicator is lit during operation.

❻ DAP RECORDING Indicator
DAP RECORDING indicator is lit during operation.

❼ Multi-mode display
Displays the operation modes.

❽ MASTER VOLUME
Adjusts volume of the main output, and the front and rear DAP output.

❾ MUTE Indicator
This indicator is lit while MASTER VOLUME is muted. It flickers while main output, and front or rear DAP output are muted.

❿ TAPE MONITOR
When this switch is pushed, TAPE MONITOR indicator ❺ is lit to change the LINE IN input to tape input or to DAT input. Push it again to set the LINE IN input.

⓫ DAP RECORDING
Mixes front DAP output with main output, and outputs the mixed signal to TAPE REC terminal. DAP RECORDING indicator ❻ is lit during operation.

⓬ SPREAD/POINT
Select SPREAD or POINT to match the source. By first press the present condition is displayed, and next press changes this parameter.
SPREAD: Select for playback of a large organized group, such as an orchestra.
POINT: Select for playback of a small group, such as a piano solo.

⓭ SOURCE REVERB
Push this button to set the source reverb time using the DOWN ∨ ⓲ and UP ∧ ⓳ buttons. Use this button when the source contains a substantial reverb components.

⓮ LISTENING ROOM
Each time this button is pushed, : first, L. ROOM REVERB, then L. ROOM SIZE are displayed and, finally, the previous display is shown.
L. ROOM REVERB: Set the degree of sound reverberation time of the listening room using the DOWN ∨ ⓯ and UP ∧ ⓰ buttons.
L. ROOM SIZE: Set the listening room size using the DOWN ∨ ⓯ and UP ∧ ⓰ buttons.

⓯ INPUT LEVEL INDICATOR
Indicates the level of the analog signal input to the DAP. When the 15 bit indicator sometimes lights, the DAP operating characteristics are the best. Push INPUT LEVEL button ⓰ to adjust the input level to 15 Bit by using the DOWN ∨ ⓯ and UP ∧ ⓰ buttons.

⓰ INPUT LEVEL
Push this button to adjust the level and balance of the analog signal input to the DAP: first, LEVEL, then Balance are displayed and, finally, the previous display is shown. Each time this button is pushed, the program parameters are sequentially displayed.
INPUT LEVEL: Push the DOWN ∨ button ⓯ to reduce the signal level. Push the UP ∧ button ⓰ to increase it.
INPUT BALANCE Push the DOWN ∨ button ⓯ to shift the balance (between the left and right channels) to the L-channel. Push the UP ∧ button ⓰ to shift the balance to the R-channel. (See page 18 for further detail.)

⓱ CHARACTER
Push this button to specify a title for each sound-field data program created in manual preset mode by using the DOWN ∨ ⓲ and UP ∧ ⓳ buttons. The title can be displayed on the multi-mode display.

⓲ PARAMETER
Each time this button is pushed, the parameters corresponding to a program are sequentially displayed, and finally, the previous display is shown. (Refer to P.27)
ROOM SIZE: Push the DOWN ∨ ⓯ or UP ∧ ⓰ button to set the desired sound-field size (e.g., hall, jazz club).
LIVENESS: Push the DOWN ∨ ⓯ or UP ∧ ⓰ button to set the reflecting sound level and damping characteristics of the desired sound-field.
LPF: Push the DOWN ∨ ⓯ or UP ∧ ⓰ button to set the frequency characterisitcs of the reflecting sound and reverberating sound.
REVERB LEVEL: Push the DOWN ∨ ⓯ or UP ∧ ⓰ button to set the reverberation sound level.
HF REVERB: Push the DOWN ∨ ⓯ or UP ∧ ⓰ button to set the reverberation time at high frequency to middle frequency.
REAR DELAY: Push the DOWN ∨ ⓯ or UP ∧ ⓰ button to set the delay time of the R/DAP playback signals. (Preset number 16-20 only)
OFFS DELAY: Use this parameter to conpensate time delay using the DOWN ∨ ⓯ and UP ∧ ⓰ button when the amplifier with D/A converter which is connected to the digital THRU OUT terminal has time delay between digital signal in and speaker out.

⓳ F/DAP LEVEL
Push this button to adjust the front DAP output signal level by using the DOWN ∨ ⓯ and UP ∧ ⓰ buttons.

⓴ R/DAP LEVEL
Push this button to adjust the rear DAP output signal level by using the DOWN ∨ ⓯ and UP ∧ ⓰ buttons.

㉑ PROGRAMED PRESET
Push this button to load any of the 20 types of preprogrammed sound-field data by using the DOWN ∨ ⓯ and UP ∧ ⓰ buttons. The data are not to be lost.

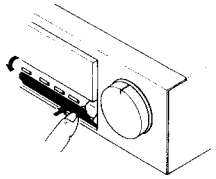
㉒ MANUAL PRESET
Push this button to load any of the 20 manually created and memorized sound-field data programs by using the DOWN ∨ ⓯ and UP ∧ ⓰ buttons to scan the list. The user can change the same 20-types of sound-field data, saved when shipped from the factory, as are loaded by pushing the button PROGRAMED PRESET ㉑

㉓ DOWN ∨
Use this button for level adjustment, balance adjustment, timing adjustment, character setting and memory loading.

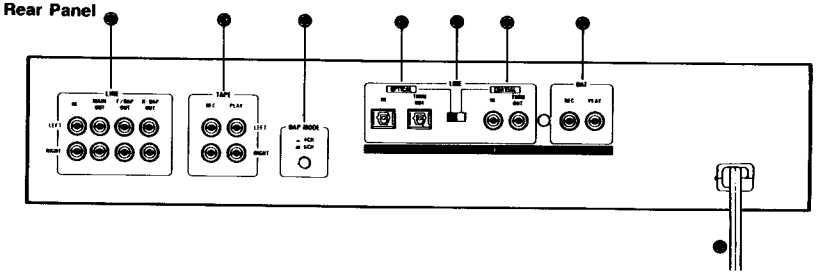
㉔ UP ∧
Use this button for level adjustment, balance adjustment, timing adjustment, character setting and memory loading.

㉕ MEMORY
Push this button to save sound-field data and characters in MANUAL PRESET mode.

㉖ Control Panel Cover
Push the indicator "PUSH OPEN" to open the control panel cover. Push the cover again to close it.



Rear Panel



● LINE (Analog)
IN: Connect the output from the source.
MAIN OUT: Connect the main amplifier (analog input).
F/DAP OUT: Connect the front sound field amplifier (analog input).
R/DAP OUT: Connect the rear sound field amplifier (analog input).

● TAPE: Connect the analog tape deck.

● DAP MODE: Changes mode to 4-channel DAP or 6-channel DAP.

● LINE (Digital)
OPTICAL
IN: Connect the optical digital-signal output from the source. Use the supplied optical fiber cable.
THRU OUT: Outputs the input to the IN terminal. Connect the optical digital input terminal of the main amplifier.

● OPTICAL/COAXIAL
Selection switch: Changes the digital signal input to match the connected optical cable or coaxial cable.

● LINE (Digital)
COAXIAL
IN: Connect the coaxial digital-signal output from the source.
THRU OUT: Outputs the input to the IN terminal. Connect the digital coaxial input terminal of the main amplifier.

● DAT: Connect the DAT deck (digital input/output terminal).

● Power Cord

REMOTE CONTROL UNIT (RM-SX1000U)

BEFORE USE

- How to install the batteries

1. Slide the cover of the battery case in the direction of the arrow to remove it.
2. Install the provided batteries ("AAA": UM-4, R03, 1.5 V), with their polarities properly placed.
3. Re-install the cover of the battery case.

- **Battery life**

The batteries can be used for an average of 1 year.

- **Battery replacement time**

When the distance at which the remote control unit functions begins to decrease, replace both batteries ("AAA": UM-4, R03, 1.5 V).

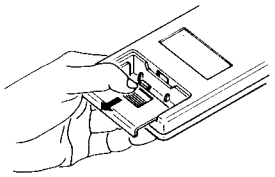
- **Batteries**

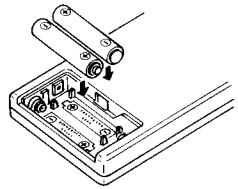
Incorrect use of batteries can cause corrosion or damage. Note the following points to lengthen battery life.

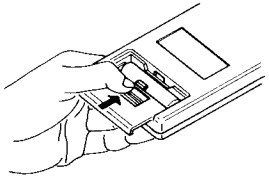
1. Install batteries observing the correct polarity, (+) and (−).
2. Do not use new and old batteries simultaneously.
3. Batteries with similar shapes may have different voltage ratings, be sure to use the correct batteries.
4. Remove batteries from the remote control until if it will not be used for a long period of time.

Note:

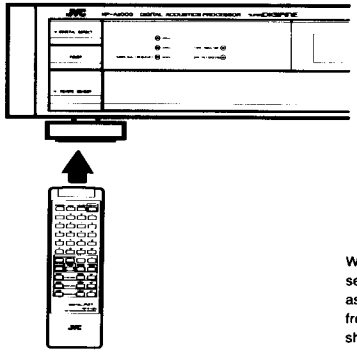
- **The lower the temperature, the shorter the battery life.**





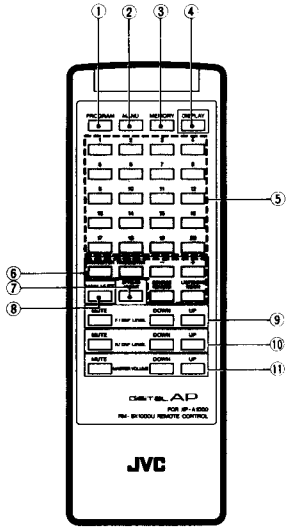


How to operate the remote control unit



When the remote control unit is directly in line with the remote sensor of this unit, the remote control unit may be used from as far away as 7 meters (23 feet). But, when it is being used from a position one side or the other, this distance will be shortened.

REMOTE CONTROL UNIT



① **PROGRAM**
Push this button to load any of the 20 types of preprogrammed sound-field data by using Memory Preset Number, button ⑤.

② **MANU**
Push this button to load any of the 20 types of manually created sound-field data by using Memory Number, button ⑤.

③ **MEMORY**
Push this button to save any of the 20 types of manually created sound-field data by using Memory Number, button ⑤.

④ **DISPLAY:**
Push this button to turn on and off the following indicators:

Input level indicator light ❽ is turned off.
↓
Input level indicator light ❽ and multi-mode display ❼ are turned off.
↓
Input level indicator light ❽ and multi-mode display ❼ are turned on.

⑤ **MEMORY Preset Number**
Push the Memory Preset Number, buttons 1 to 20, to load sound-field data in program preset mode or manual preset mode. This button specifies the preset number to save the sound-field data created in manual preset mode.

⑥ **CHARACTER**
Push this button to name a title for each sound-field data program created in manual preset mode. Each pressing moves the cursor and changes the character using the "–" button ⑥ and "+" button ⑥. The title can be displayed on the multi-mode display.

⑥ **PARAMETER**
Each time this button is pushed, the parameters corresponding to a program are sequentially displayed. (Refer to P.27)

ROOM SIZE: Push the "–" button ⑥ or "+" button ⑥ to set the desired sound-field size (e.g., hall, jazz club).

LIVENESS: Push the "–" button ⑥ or "+" button ⑥ to set the reflecting sound level and damping characteristics of the desired sound-field.

LPF: Push the "–" button ⑥ or "+" button ⑥ to set the frequency characterisitcs of the reflecting sound and reverberating sound.

REVERB LEVEL: Push the "–" button ⑥ or "+" button ⑥ to set the reverberation sound level.

HF REVERB: Push the "–" button ⑥ or "+" button ⑥ to set the reverberation time at high frequency to middle frequency.

REAR DELAY: Push the "–" button ⑥ or "+" button ⑥ to set the delay time of the R/DAP playback signals. (Preset number 16-20 only)

OFFS DELAY: Compensate the differences between amplifier playback signals caused by mismatched delay time in the D/A conversion when a digital amplifier is connected using the "–" button ⑥ and "+" button ⑥.

⑥ **SOURCE REVERB**
Push this button to set the source reverb time using the "–" button ⑥ and "+" button ⑥. Use this button when the source contains a substantial reverb components.

⑥ **LISTENING ROOM**
Each time this button is pushed, : first, L. ROOM REVERB, then L ROOM SIZE are displayed and, finally, the previous display is shown.

L. ROOM REVERB
Set the degree of sound reverberation in the listening room using the " " button ⑥ and "+" button ⑥.

L. ROOM SIZE
Set the listening room size using the "–" button ⑥ and "+" button ⑥.

⑥ – □ Use this button for level adjustment, balance adjustment, timing adjustment, character setting, sound-field data creation and memory loading. Select adjustment in "–" direction and specify characters in reverse order.

⑥ + □ Use this button for level adjustment, balance adjustment, timing adjustment, character setting, sound-field data creation and memory loading. Select adjustment in "+" direction and specify characters in reverse order.

⑦ **SPREAD/POINT**
Select SPREAD or POINT to match the source. By first press the present condition is displayed, and next press changes this parameter.

SPREAD: Select for playback of a large organized group, such as an orchestra.

POINT: Select for playback of a small group, such as a piano solo.

⑧ **MAIN MUTE**
Push this button to mute the main system signals. The Mute indicator flickers while this mode is activated. Push it again to cancel muting.

⑨ **F/DAP LEVEL**

MUTE: Push this button to mute the front DAP output signal level. The Mute indicator flickers. Push it again to cancel muting.

DOWN: Each time this button is pushed, the front DAP output signal level is reduced. Keep pushing it to continuously reduce the level.

UP: Each time this button is pushed, the front DAP output signal level is increased. Keep pushing it to continuously increase the level.

⑩ **R/DAP LEVEL**

MUTE: Push this button to mute the rear DAP output signal level. The Mute indicator flickers while this mode is activated. Push it again to cancel muting.

DOWN: Each time this button is pushed, the rear DAP output signal level is reduced. Keep pushing it to continuously reduce the level.

UP: Each time this button is pushed, the rear DAP output signal level is increased. Keep pushing it to continuously increase the level.

⑪ **MASTER VOLUME**

MUTE: Push this button to mute the total volume of the main, front DAP and rear DAP output. The mute indicator on the main set is lit. Push it again to release muting.

DOWN: Pressing this button rotates the Master Volume Knob CCW to reduce the total level.

UP: Pressing this button rotates the Master Volume Knob CW to increase the total level.

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OPERATION

- Refer to the relevant instruction manuals for the operation of the amplifiers.
- Adjust the volume levels of the amplifiers to the same setting.
- Turn down MASTER VOLUME ⑱
- Confirm "Connection and Preparations" prior to turning on the power to the devices.

How to use PROGRAMED PRESET

The DAP has 20 sound-field programs containing sound-field data of famous concert halls, churches, etc. Select a favorite sound-field pattern.

1. Playback the source.

2. Setting source and listening room parameters

[SPREAD/POINT] • Push the SPREAD/POINT button ⑰ or ⑦ to specify SPREAD or POINT according to the music selected for playback.

SPREAD : Specified for a large performance such as an orchestra.

POINT : Specified for a small performance such as a piano solo.

[SOURCE REVERB] : Specify the optimum reverberation time according to the source's reverberation time.

1. Push the SOURCE REVERB button ⑰ or ⑥ to show the reverberation time on the display.

[display]

2. Push the "－" or "＋" button ⑥ on the remote controller (the DOWN ∨ ⑰ or UP ∧ ⑯ button on the main set), to set the source reverberation time.

Time setting guideline (second)

Church music	3 ~ 4
Performance in a large-size hall	1 ~ 2
Performance in a small-size hall	0.5 ~ 1
Live house	0.3 ~ 0.5

[LISTENING ROOM]

1. Push the LISTENING ROOM button ⑮ to show "L.ROOM REVERB" on the display.

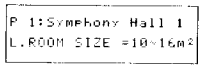
[display]

2. Push the "－" or "＋" button ⑥ on the remote controller, (the DOWN ∨ ⑰ or UP ∧ ⑯ button on the main set), to set the reverberation time of the listening room.

How to find the reverberation time of the listening room (by clapping hands.)

0.6 seconds	Longer
0.4 seconds	Middle
0.2 seconds	Shorter

3. Push the LISTENING ROOM button ⑮ to show "L.ROOM SIZE" on the display.



[display]

4. Push the "－" or "＋" button ⑥ on the remote controller, (the DOWN ∨ ⑰ or UP ∧ ⑯ button on the main set), to set the listening room size.

~ 10 m²
10 ~ 16 m²
16 m² ~

Note:
Once these parameters are set, they are fixed until other values are newly set.

3. Load the program.

[On the remote controller]

1.

Push the PROGRAM button ①.

2.

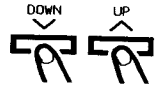
Push the Program No. button ⑤ to specify the program.

[On the main set]

1.

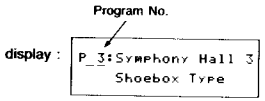
Push the PROGRAMED PRESET button ⑰

2.

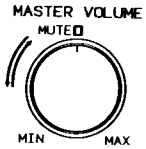


Push the DOWN ∨ ⑰ and UP ∧ ⑯ buttons to specify the program.

Program name and type name are shown on the display.



4. Adjust the volume.



Adjust the volume using MASTER VOLUME (⑰ or ⑪).

Music is playedback with surrounding sound pattern effects. Use the 'Adjustment' procedure to adjust the volume. (Refer to P.18)

PROGRAM CHARACTERISTICS

20 programs are provided for sound-field reproduction based on the sound-field data of musical performance facilities. Select the programmed sound-field according to the music source that you want reproduced for playback.

P1: Symphony Hall 1 Shoebox Type
Reproduces the sound field of a Dutch shoe-box type hall, built in 1888, with about 2200 seats. This is an arena type hall with a comparatively short depth and greater width. It is famous for its good sound effects.

P2: Symphony Hall 2 Shoebox Type
Reproduces the sound field of a West German shoe-box type hall, rebuilt in 1981, accommodating about 2500 persons. This hall provides shorter reverberation timing than the newer halls, strong reflected sound in the direction of the stage and powerful sound where direct sound is amplified.

P3: Symphony Hall 3 Shoebox Type
Reproduces the sound field of a Japanese hall, built in 1983, accommodating about 1000 persons. This hall is a typical shoe-box type with a flat ceiling.

P4: Symphony Hall 4 Vineyard Type
Reproduces the sound field of a modern hall, opened in West Germany in 1985, having 2500 seats. This hall has a mostly wooden interior and complicated reflecting plates to diffuse reflected sound.

P5: Symphony Hall 5 Vineyard Type
Reproduces the sound field of a Japanese hall for classical music, completed in 1986, having about 2000 seats. 10 transparent reflecting plates are installed in the upper section of the stage.

P6: Symphony Hall 6 Vineyard Type
Reproduces the sound field of a multi-purpose concert hall, constructed in West Germany in 1959, accommodating about 1500 persons. The ceiling has a complicated structure for sound diffusion. The reverberation characteristics are comparatively dead.

P7: Recital Hall Small Musical Space
Reproduces the sound field of a hall used for classical music recitals. This hall with an elliptic shape is located in Holland and produces an at-home atmosphere.

P8: Opera House with Tiered Seating
Reproduces the sound field of an opera house where the seats are tiered. This opera house with a high ceiling and short depth is located in Austria.

P9: Chathedral Gothic Style
Reproduces the sound field of a church built in the Middle Ages. This huge West German cathedral is made of stone; it has a ceiling height of 40m.

P10: Church High-Ceilinged Space
Reproduces the sound field of a church with a high ceiling. This program is suitable for playback of pipe organ music and church music. This church in West Germany is middle-sized among European churches and has natural reverberation characteristics.

P11: Live Club 1 Jazz Club
Reproduces the sound field of a jazz club. It is a live house with a low ceiling and an intimate atmosphere where musicians plays very near the audience.

P12: Live Club 2 Discotheque
Reproduces the sound field of a discoteque.

P13: Pavilion Live Concert
Reproduces the sound field of an octagonal pavilion with a high ceiling.

P14: Gymnasium Hard-floored Hall
Reproduces the sound field of a board-floor gymnasium which generates much reflected sound.

P15: Stadium Out Door Live Concert
Reproduces the sound field for a music performance in a baseball or football stadium with about 30,000 seats.

P16: Movie Theater 1 Small Size
Reproduces the sound field of a movie theater, of rectangular shape, with about 100 seats.
(R/DAP OUT outputs the delayed L—R signals.)

P17: Movie Theater 2 Medium-Sized Space
Reproduces the sound field of a movie theater with 400 to 500 seats.
(R/DAP OUT outputs the delayed L—R signals.)

P18: Movie Theater 3 Large Size
Reproduces the sound field of a movie theater with about 1,000 seats.
(R/DAP OUT outputs the delayed L—R signals.)

P19: Movie Theater 4 Extra Large Space
Reproduces the sound field of a movie theater with about 1,500 seats.
(R/DAP OUT outputs the delayed L—R signals.)

P20: Movie Theater 5 Standard
Outputs no signals to F/DAP OUT.
(R/DAP OUT outputs the delayed L—R signals.)

ADJUSTMENT

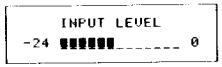
1. Operating Level Adjustment

For optimum operation, adjust the analog input signal level.

1.1 Connect the source equipment to LINE IN and play some music which is recorded in relatively high level.

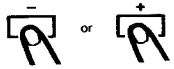
1.2 INPUT LEVEL Display

Push the INPUT LEVEL button ● to show the input level on the display.



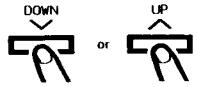
[display]

1.3 Level Adjustment
[On the remote controller]



Push the "–" or "+" button ⑥ to light the "15 bit" at times in the Input Level indicator ●

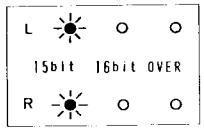
[On the main set]



Push the DOWN ∨ ● or UP ∧ ● button to light the "15 bit" at times in the Input Level indicator ●

Each time the button is pushed, the level is reduced or increased. Keep pushing it to continuously change the level.

INPUT LEVEL Indicator



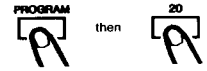
2. INPUT Balance Adjustment

When you select either mode of program 16 — 20 (MOVIE THEATER), adjust the right-left balance of the input signal. Refer to the following procedure.

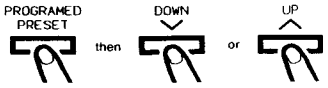
2.1 Input "monaural" signal

Connect the "monaural" signal to LINE IN terminals.

2.2 Program Number specification
[On the remote controller]



[On the main set]



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2.3 Output R/DAP signals only

Push the MAIN MUTE button ⑧ and F/DAP MUTE button ⑨ to mute the main and F/DAP signals and output only the R/DAP signals.

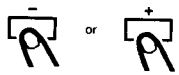
2.4 INPUT BALANCE display

Push the INPUT LEVEL button ❶ twice to show the input balance on the display.

display :

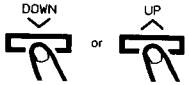
2.5 Balance adjustment (INPUT BALANCE display)

[On the remote controller]



Push the " – " or " + " button ⑥ to set the R/DAP level to a minimum.

[On the main set]



Push the DOWN ∨ ❷ or UP ∧ ❸ button to set the R/DAP level to a minimum.

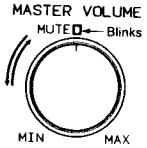
Each time the button is pushed, the balance is varied by one increment. Keep pushing it to continuously change the balance.

3. F/DAP-R/DAP balance adjustment

3.1 Mute the sound-field signal.

Push the F/DAP MUTE button ⑨ and R/DAP MUTE button ⑩ to mute the sound of the sound-field signal.

3.2 Set the MASTER VOLUME



Rotate the MASTER VOLUME knob ❽ to set the normal level of the main signal.

3.3 Release muting

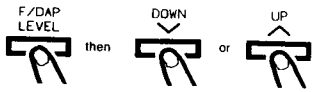
Push the F/DAP MUTE button ⑨ again to release muting.

3.4 F/DAP adjustment

No level adjustment is required if the amplifiers and speakers are at the same level, otherwise, adjust the F/DAP level to provide normal listening with the effect sound .

[On the remote controller:]

[On the main set]



Each time the button is pushed, the level is reduced or increased. Keep pushing it to continuously change the level.

3.5 F/DAP-R/DAP balance

3.5.a

Push the MAIN MUTE button ⑧ to mute the main signal.

3.5.b

Push the R/DAP MUTE button ⑩ again to release muting.

3.5.c Adjust the R/DAP level to be balanced with the F/DAP level.

[On the remote controller]

[On the main set]

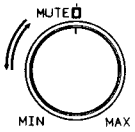
Each time the button is pushed, the level is reduced or increased. Keep pushing it to continuously change the level.

3.6 Release muting

Push the MAIN MUTE button ⑧ to release muting.

3.7 Adjust the total level

[On the main set]



Rotate the MASTER VOLUME ❽ to adjust the total level.

or

[On the remote controller]

PARAMETER CHANGE

The programs contain the various data for sound-field reproduction based on the data collected in the performance places using the symmetrical 6-point sound-field analyzing method. You can create your own original sound-field reproduction pattern by changing the parameters and then saving the new sound-field pattern in a manual-memory location.

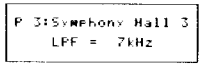
1. Selecting a program

Select a program according to the "How To use PROGRAMED PRESET". (P. 15)(ex. program 3)

2. Selecting parameters

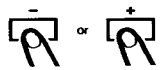
LPF: 7 kHz

Push the PARAMETER buttons ● or ⑥ to select the parameters to be changed.



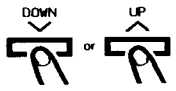
3. Changing parameters

[On the remote controller]



Push the "–" or "+" button ⑥ to set the parameter's value.

[On the main set]



Push the DOWN ∨ ● or UP ∧ ● button to set the parameter's value.

Each time the button is pushed, the value is reduced or increased by one unit. Keep pushing it to continuously change the value.

4. Change each parameter by repeating Steps 2 and 3

- See P.26 for definitions of the parameter values.
- Changed parameters return to the programed value when another program is loaded if it is not stored in manual memory.
- Using the manual memory procedure, store the changed parameters in manual memory to save your new original sound- field program.

MANUAL MEMORY — Saving in Manual Preset

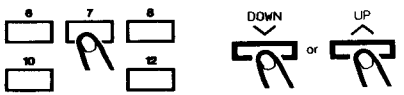
You can save a maximum of 20 of your own sound-field programs.

1. Select and change the parameters using the procedures described above.
2. Push the **MEMORY** buttons ③ or ● , and the MEMORY No. position mark on the main set blinks.

[On the remote controller] [On the main set]

3. Specify the memory channel number.

[On the remote controller] [On the main set]



Keep pushing the button to continuously change the channel No. When the desired channel is displayed, release the button.

Your own sound-field program has been saved in the specified manual preset memory.

CHARACTERS

Titles and messages can be saved for programs created in manual mode.

Procedure: Saving 'JVC' in program No. 3:

1. Load a manually-created program.
[On the remote controller]

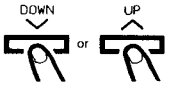
1. Push the MANUAL button ②.

2. Push the Program No. button ⑤.

[On the main set]

1. Push the PROGRAMED PRESET button ㉒

2. Push the DOWN ∨ ㉘ or UP ∧ ㉙ button to specify the program No.



Display :

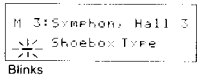
2. Specify a character position using the cursor.
1.
[On the remote controller]

Push the CHARACTER button ⑥ to display the cursor.

1.
[On the main set]

Push the CHARACTER button ⑥ or ⑰ to display the cursor.

display :



Blinks

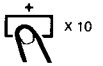
2. [On the remote controller]

Push the CHARACTER button ⑥ again to move the cursor to the character position. Each time the button is pushed, the cursor moves one position to the right. Keep pushing it to continuously move the cursor.

[On the main set]

Push the CHARACTER button ⑰ again to move the cursor to the character position.

3. Specify a character



[On the remote controller]
Push the – or + button to specify a character.

[On the main set]
Push the DOWN ∨ ㉘ or UP ∧ ㉙ button to specify a character.

Each time the button is pushed, the characters and numbers shown below are displayed. Keep pushing it to continuously change the display.

← DOWN UP →

A	B	C	D	E	F	G	H	I	J	K	L	M	M	O	P
Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f
g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v
w	x	y	z	1	2	3	4	5	6	7	8	9			

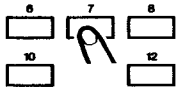
4. Create a title or message by repeating Step 2 and 3

- Delete unnecessary parts using "(space)"

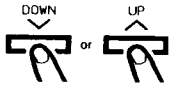
5. Save the title or message.

Push the MEMORY button ③ or ㉗ to save the character.

6. Specify the memory channel No.
[On the remote controller]



[On the main set]

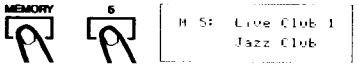


Keep pushing the button to continuously change the channel number.
When the desired channel is displayed, release the button.

Your title or message has been saved in the specified manual preset memory.

Note:
[A]

[B]



[C]

When you push CHARACTER button ㉗ or ⑥ after the procedure [A] and [B], the preset number changes (cf [C]). In this case, keep creating a title and do the procedure [B] again.

TERMINAL OUTPUT AND RECORDING

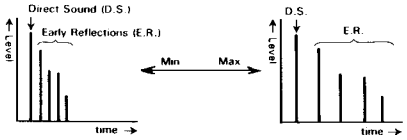
Terminal output signals are changed by switch settings.
Music can be recorded after connecting a cassette deck and DAT deck to the TAPE terminal and DAT terminal, respectively.
Notes:
* F/DAP is mixed with source sound during recording in this mode.
Adjust the recording level on the deck. For details on the tape deck operation, refer to the tape deck instruction manual.
** Do not use this switch-combination mode, because analog and digital signals are mixed and output to the MAIN OUT terminal.

Switch Operation				TAPE REC	DAT REC	MAIN
⑧ DIGITAL DIRECT	⑨ DAP REC	⑩ DAP MODE	⑪ TAPE MONITOR	Output Signal (Analog)	Output Signal (Digital)	Output Signal (Analog)
OFF	ON	4 Channel (▬)	ON			
			OFF	* Analog LINE IN + F/DAP	Digital LINE IN	Analog LINE IN + F/DAP
		6 Channel (■)	ON			
			OFF	* Analog LINE IN + F/DAP	Digital LINE IN	Analog LINE IN
	OFF	4 Channel (▬)	ON	Analog LINE IN	Digital LINE IN	TAPE PLAY + F/DAP
			OFF	Analog LINE IN	Digital LINE IN	Analog LINE IN + F/DAP
		6 Channel (■)	ON	Analog LINE IN	Digital LINE IN	TAPE PLAY
			OFF	Analog LINE IN	Digital LINE IN	Analog LINE IN
ON	ON	4 Channel (▬)	ON			
			OFF			
		6 Channel (■)	ON			
			OFF			
	OFF	4 Channel (▬)	ON	Analog LINE IN	Digital LINE IN	** TAPE PLAY + DAT PLAY F/DAP
			OFF	Analog LINE IN	Digital LINE IN	** Analog LINE IN + Digital LINE IN F/DAP
		6 Channel (■)	ON	Analog LINE IN	Digital LINE IN	TAPE PLAY
			OFF	Analog LINE IN	Digital LINE IN	Analog LINE IN

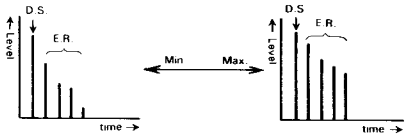
PARAMETERS

The 20 programs contain the sound field parameters of each performance site. This sound-field data was collected using the symmetrical 6-point sound-field analyzing method. You can create your own original sound field by changing one or more of these sound field parameters:

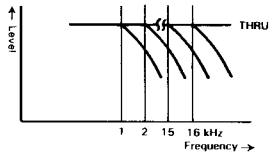
1. ROOM SIZE
The data on the size of a performance site is programmed as a standard value of 1.0.
You can change this parameter from 0.5 (1/2) to 2 (double-size room).



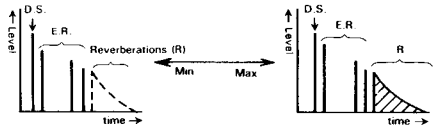
2. LIVENESS
The reflection rate measured in a performance site is programmed as a standard value of 1.0.
You can change this parameter between 0.5 (1/2) and 2 (double).



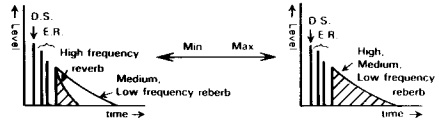
3. LPF
Indicates the frequency characteristics of the total reflected sound. The programmed standard value varies depending upon the performance site.
You can change this parameter between flat and a cut-off frequency of 1 kHz.



4. REVERB LEVEL
Controls the reverberating sound level. The data of each performance site is programmed as a standard value of 1.0.
You can change this parameter between 0 (none) and 2 (double).

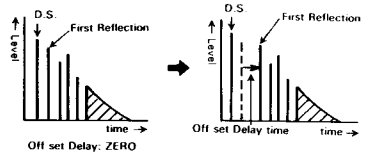


5. HF REVERB
Controls the reverberation time characteristics at high frequencies. The value of 1.0 is the same rate as the middle frequency reverberation time characteristic.
You can change this parameter between 0.1 and 1.0 (double).
The standard value varies depending upon the performance site.



6. REAR DELAY (Preset 16 — 20 only)
Sets the delay time of the R/DAP output signals (the rear speakers) delayed from the main signals. You can change this parameter from the standard value of 20 msec to between 15 and 30 msec.

7. OFFS DELAY
Sets the output delay time of the F/DAP (front speakers) and R/DAP (rear speakers) signals delayed from the main signals in order to compensate the time delay between digital input signal and analog output signal of an amplifier with D/A converter. You can change this parameter from the standard value of 0, up to 200 msec. Set the maximum value only when using the DAP in digital direct mode.



Note: When you use other amplifiers or input analog signals, you do not have to use this parameter.

ACOUSTICS PROCESSING MODE PATTERNS

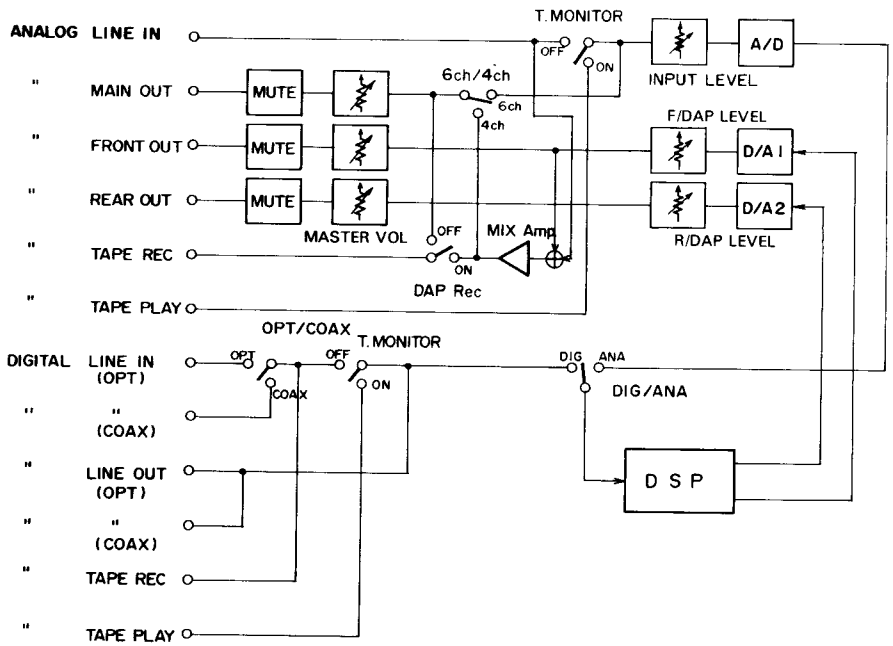
NO	PROGRAM NAME	TYPE	PARAMETER NAME	LOW-	PRESET VALUE	-HIGH
1	SYMPHONY HALL 1	SHOEBOX TYPE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	7 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.7	1
2	SYMPHONY HALL 2	SHOEBOX TYPE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	7 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.7	1
3	SYMPHONY HALL 3	SHOEBOX TYPE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	7 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.7	1
4	SYMPHONY HALL 4	VINEYARD TYPE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	7 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.7	1
5	SYMPHONY HALL 5	VINEYARD TYPE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	7 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.7	1
6	SYMPHONY HALL 6	VINEYARD TYPE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	7 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.7	1
7	RECITAL HALL	SMALL MUSICAL SPACE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	8 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.8	1
8	OPERA HOUSE	WITH TIERED SEATING	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	8 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.8	1
9	CATHEDRAL	GOTHIC STYLE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	5 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.5	1
10	CHURCH	HIGH-CEILINGED SPACE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	6 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.6	1
11	LIVE CLUB 1	JAZZ CLUB	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	16 kHz	THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	1	—
12	LIVE CLUB 2	DISCO THEQUE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	16 kHz	THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	1	—
13	PAVILION	LIVE CONCERT	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	6 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	6	1
14	GYMNASIUM	HARD-FLOORED HALL	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	8 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.8	1
15	STADIUM	OUTDOOR LIVE CONCERT	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	3 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.3	1
16	MOVIE THEATER 1	SMALL SPACE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	16 kHz	THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	1	—
			REAR DELAY	15 ms	20 ms	30 ms
17	MOVIE THEATER 2	MEDIUM-SIZED SPACE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	8 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.8	1
			REAR DELAY	15 ms	20 ms	30 ms
18	MOVIE THEATER 3	LARGE SPACE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	7 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.7	1
			REAR DELAY	15 ms	20 ms	30 ms
19	MOVIE THEATER 4	EXTRA LARGE SPACE	ROOM SIZE	0.5	1	2
			LIVENESS	0.5	1	2
			LPF	1 kHz	8 kHz	16 kHz, THRU
			REVERB LEVEL	0	1	2
			HF REVERB	0.1	0.8	1
			REAR DELAY	15 ms	20 ms	30 ms
20	MOVIE THEATER 5	STANDARD	REAR DELAY	15 ms	20 ms	30 ms

NOTE: Each mode pattern has a parameter of Offset Delay (OFFS DELAY). See page 26 for use.

TABLE OF PARAMETERS

	PARAMETER	ADJUSTABLE RANGE	STEP	INITIAL VALUE	REMARKS
1	ROOM SIZE	0.5 — 2	0.1	1	Can be stored in Manual Preset Memory
2	LIVENESS	0.5 — 2	0.1	1	
3	LOW PASS FILTER	1 — 16 kHz, THRU	1 kHz		
4	REVERB LEVEL	0 — 2	0.1	1	
5	HIGH-FREQ. REVERB	0.1 — 1	0.1		
6	OFFSET DELAY	0 — 200 ms	1 ms	0 ms	
7	REAR DELAY	15 — 30 ms	1 ms	20 ms	
8	SPREAD/POINT	SPREAD/POINT		SPREAD	Last setting held in Memory
9	LISTENING ROOM REVERB	0.2 — 0.6 ms	0.1 ms	0.4 ms	
10	LISTENING ROOM SIZE	10 m^2 or less, 10 — 16 m^2, 16 m^2 or more		10 — 16 m^2	
11	SOURCE REVERB	0 — 5 sec	0.1 sec	0 sec	

BLOCK DIAGRAM



TROUBLESHOOTING

Sympton	Possible Causes	Remedy
• No power although power switch is turned on.	• Power cord is disconnected.	• Connect the power cord.
• No sound from the main speakers.	• MAIN MUTE button ⑧ of the remote controller is pushed, and MUTE indicator ⑫ is flickering. • DIGITAL DIRECT switch ⑬ is not turned on although a digital amplifier is connected. • DIGITAL DIRECT switch ⑬ is turned on although an analog amplifier is connected.	• Push the MAIN MUTE button ⑧ to cancel muting. • Push the DIGITAL DIRECT switch to turn the indicator light on. • Push the DIGITAL DIRECT switch again to turn the indicator light off.
• No sound from any speakers	• MASTER VOLUME MUTE button ⑪ of the remote controller is pushed, and the MUTE indicator ⑫ is lit. • The volume of each connected amplifier is lowered.	• Push the MUTE button ⑪ to cancel muting. • Turn the volume up.
• No sound from front DAP speakers	• F/DAP LEVEL MUTE button ⑨ of the remote controller is pushed, and the MUTE indicator ⑫ is flickering. • The volume of each connected amplifier is lowered.	• Push the MUTE button ⑨ to cancel muting. • Turn the volume up.
• No sound from rear DAP speakers	• R/DAP LEVEL MUTE button ⑩ of the remote controller is pushed, and the MUTE indicator ⑫ is flickering. • The volume of each connected amplifier is lowered.	• Push the MUTE button ⑩ to cancel muting. • Turn the volume up.
• Sound from the main speakers mismatches the sound from the DAP speakers (when the DIGITAL DIRECT switch ⑬ is ON).	• Main signal amplifier is a digital amplifier with a larger delay time.	• Adjust the offset delay.
• No control by remote controller	• Distance and angle between remote sensor ⑭ and remote controller are not proper. • Battery may need replacement.	• Use the remote controller within a range of 7 m (23 ft) and 30 deg. • Replace the battery with new ones.
• Less feeling of a live performance	• DAP MODE switch ⑮ on the rear panel is set to 4-channel in spite of 6-channel reproducing system. • Unbalanced. • Volume of F/DAP and R/DAP amplifiers is lowered.	• Set the DAP MODE switch ⑮ on the rear panel to 6 Channel. • Push the INPUT LEVEL button ⑯ twice to set BALANCE mode, and adjust the balance using the DOWN and UP buttons or the −/+ button ⑥ of the remote controller. • Turn the volume up.

SPECIFICATIONS

• Input Terminals : (32 K/44.1 K/48 kHz) Automatic sampling frequency selection
  DIGITAL: OPTICAL LINE IN; COAXIAL LINE IN; COAXIAL DAT PLAY
  ANALOG: LINE IN; TAPE PLAY
• Output terminals
  DIGITAL: OPTICAL THRU OUT; COAXIAL THRU OUT; COAXIAL DAT REC
  ANALOG: MAIN-OUT; FRONT DAP OUT; REAR DAP OUT; TAPE REC
• Input Sensitivity/Impedance: 500 mV/47 kΩ (LINE IN, TAPE PLAY)
• Maximum Output Level/Impedance: 5 V/660 Ω (FRONT DAP OUT, REAR DAP OUT)
• Total Harmonic Distortion:
  MAIN OUT: 0.002% (ANALOG, 1 kHz)
  DAP OUT: 0.004% (DIGITAL, 1 kHz); 0.005% (ANALOG, 1 kHz)
• Frequency Response:
  MAIN OUT: 5 Hz ~ 100 kHz +0, −3 dB (ANALOG)
  DAP OUT: 5 Hz ~ 20 kHz, +0.5, −1 dB (DIGITAL); 5 Hz ~ 20 kHz, +0.5, −3 dB (ANALOG)
• Dynamic Range :
  DAP OUT: 94 dB (DIGITAL); 94 dB (ANALOG)
• Signal-to-Noise Ratio :
  MAIN OUT: 110 dB (ANALOG); 100 dB (DIGITAL)
  DAP OUT: 94 dB (ANALOG)
• D/A Converter : 16 bit linear, with 4 times oversampling digital filter
• A/D Converter : 64 times oversampling 16 bit A/D converter
• Number of Sound Field Patterns
  Programed : 20
  Manual : 20
• Dimensions (W×H×D) : 475×102.5×360 mm; 18-3/4×4×14-3/16 inches
• Weight : 6.8 kg; 15 lbs.
• Power Consumption : 25 W
• Line Voltage & Frequency : AC 120 V ∿, 60 Hz
• Accessories : Optical Fiber Cable 1 m (3.28 ft) × 1; Audio Signal Cable 1 m (3.28 ft) × 4; Remote control unit × 1; Batteries × 2

(No. 20062) 1-17